a Bourdon's metallic recording barometer, in which the drum turning in eight days is supplied with a continuous band of paper, serving for six months or a year.

Various specimens of aneroids were exhibited, including skeleton aneroid, showing the various working parts; aneroid with altitude scales; pocket watch aneroid, indicating heights to 20,000 feet; Stanley's surveying aneroid; Field's engineering aneroid; aneroids as supplied to Her Majesty's ships previous to 1854, and the pattern now adopted; and self-registering aneroid with maximum and minimum indexes. Messrs. Lund and Blockley exhibited a barometer dial 6 feet in diameter, the hand of which is kept in its true position by a single aneroid vacuum-box.

Mr. Stanley showed his chrono-barometer, which is a clock that counts the oscillations of a pendulum formed by a suspended barometer. The upper chamber of the pendulum is a cylinder of an inch or more in diameter. By change of atmospheric pressure the mercury in the pendulum is displaced from the bottom to the top, and *vice versâ*. The rate of the clock is accelerated or retarded in proportion to the displacement of the mercury.

Among the other forms of barometer were Jordan's glycerine barometer, the cistern and upper part of the tube only being shown, as the instrument, when complete, would be about 30 feet in height; Cetti's long-range mercurial and glycerine barometer; Hicks's flexible barometer; Lowne's handy weather-glass; Ronketti's thermo-barometer; Wilson's differential barometer; and several patterns of sympiesometer.

The most interesting of the new instruments was Immisch's pocket metallic thermometer. This is a watch-shaped instrument, and about the size of a small locket. The index-hand is actuated by the expansion and contraction of a very small Bourdon tube filled with a highly expansive liquid, and hermetically sealed, the motion of the tube being multiplied by an ordinary rack and pinion.

SONNET

To the Savilian Professor of Astronomy in the University of Oxford, Author of a Memoir on the Proper Motion of Forty Stars in

THE PLEIADES,

On his receiving the Gold Medal of the Royal Astronomical Society for his Investigations of the Relative Brightness of the Fixed Stars

PRITCHARD! thy praise is lifted to the skies,
Who in the starry fields find'st pure delight,
Noting each ray that gilds the brow of night
From pale gems set in depths beyond surmise.
Press on, where Fame's sublimest summits rise-
Time's stroke falls lightly on his sacred might
Who ploughs from morn to eve his furrow right
Then sinks to rest 'midst sunset's gorgeous dyes.
Hail! faultless herald of the bright-eyed throng
Heir to the wand, once Tycho's, to assign
What place and precedence to each belong:
Whilst yet with watery ray yon Pleiads shine
Or strew with sands of gold their hair divine,
Thy name shall flourish in immortal song.

NOTES

HER MAJESTY THE QUEEN has been pleased to intimate her intention of opening the Colonial and Indian Exhibition on Tuesday, May 4.

M. VULPIAN has been elected by a majority of one over M. Alphonse Milne-Edwards, Permanent Secretary of the Paris Academy of Sciences, in the place of the late M. Jamin.

THE death is announced of Mr. Charles George Talmage, F.R.A.S., on Saturday. He was director of the private observatory of Mr. J. G. Barclay, at Leyton.

THERE has recently died in Calcutta one who, though not in any sense a man of science, has done much for science as an artistic delineator. A Belgian by birth, Jules Schaumberg more than twenty years ago found his way to India, in search of the picturesque, and was at first associated with M. Rousselet, author of "Les Indes des Rajahs," during which time he made many admirable sketches and water-colour pictures illustrative of the architecture and life in the cities of Central India. His capital having been exhausted, he accepted an appointment as artist in connection with the Geological Survey of India. The number of plates drawn by him for the Survey and also for the *Journal* ot the Society amount to hundreds, and those who knew Schaumberg well remember the interest and spirit he threw into the drawing of plates representing animated life. He lately officiated as Principal of the Bengal School of Art, and died suddenly at the age of forty-six.

THE Biological Section of the Canadian Institute of Toronto proposes to petition the Dominion Government to reserve one of the islands in Lake Superior for the preservation of native Canadian animals.

MR. EDGAR HALL, of Queenborough, sends us a cutting from the *Sydney Echo* of February 4, giving an interesting account of a vessel which is reported to have been set fire to by a meteor. The vessel, a schooner, the *J. C. Ford*, was on her voyage from the Pacific Coast to Kahului, Maui, and the communication originally appeared in the *Pacific Advertiser*, published at Honolulu. The letter is dated "Kahului, Dec. 22, 1885," and addressed to the Hon. S. G. Wilder. It is signed "T. H. Griffiths, captain; B. J. Weight, passenger." On Saturday, Dec. 12, according to the letter, being in latitude 23° 53′ N., longitude 143° 26′ W., at 1.30 p.m., the weather being fine and wind moderate, the first mate, Mr. Mercer, discovered the mizen-staysail, which was clewed up, to be in flames at the mainmast-head. With all possible speed the fire was put out by means of water, beating, and cutting away. "It is needless to say that all hands wondered at a fire occurring at the mast-head, but the finding of fragments of some metallic-like substance showed us that something of a meteoric nature was the cause. Those on the deck were picking up burning fragments and throwing them overboard. The pieces of the strange substance were found at the base of the mainmast. A piece as large as a man's hand was thrown overboard quite hot by Mr. Weight, and a piece as large, or larger, which was burning the mainsail, was thrown overboard by one of the hands. The above are the facts, as we remember them, and as they are recorded on the ship's log. In the night previous the weather was clear, but meteors were very numerous, and the mate and man at the wheel noticed their frequency and numbers, and also that they would burst in a manner resembling a rocket. No shock was noticed, the first intimation of the occurrence being the staysail in flames. Our theory is that the substance found is the crust of a meteor or fragment projected laterally. As there was a large quantity of kerosene and other combustible matter on deck, there were doubtless more than the two pieces thrown overboard in our anxiety to avoid disaster."

A PRIZE of 25,000 francs, or 1000*l.*, is offered every year by Leopold II., King of the Belgians, for the best essay on some predetermined subject tending to advance the well-being of mankind. The competition is alternately restricted to Belgians and thrown open to the whole world, being settled by an international jury. The subject of this year's competition, open to the whole world, was "The Best Means of improving Sandy Coasts"; and the prize has been awarded by an international jury, including some of the most eminent English and French engineers, to M. de Mey, Engineer of Ponts et Chaussées, Bruges, against fifty-nine competitors. The subject for the essay at the next international competition is "The Progress of Electricity applied to Motive Power and Illumination, its Applications and Economical Advantages." The essays for competition, which must be written in French, or translated into that language, are to be sent before January 1, 1889, to the Minister of Agriculture, Industry, and Public Works, from whom the conditions of the competition may be obtained.

Botanists will be pleased to learn that the "Flora of the West Riding of Yorkshire," which Dr. F. Arnold Lees has been engaged on for some years, will shortly be ready for the press. It will be a complete and comprehensive enumeration of species in all the groups, phanerogamic and cryptogamic, which occur in the wide and diversified area of which it treats, together with chapters on lithology, climatology, bibliography, &c. The account of each plant will include its range, horizontal and vertical, and its history as a West Riding species. The work is to be issued by subscription under the auspices of the Yorkshire Naturalists' Union, and will constitute an important volume of their series of memoirs dealing with the flora and fauna of Yorkshire.

The Sheffield Free Library Committee can report a greatly increased use of the specifications of patents in the Reference Library as well as of the books of the Science and Art Class. The issue also of works of fiction in the circulating departments has also fallen off, while that of history and travels and arts and sciences has increased in both central and branch libraries. Of this, however, the Committee may probably take much of the credit, as they have not only spent a larger amount of money in the more valuable books, but have also purchased a larger number of volumes. The value of branch libraries is shown by the result that three in Sheffield have scarcely reduced the average issues of the central one; and if, in a place of so great a rental, further progress is crippled for lack of funds, how highly necessary must something beyond a penny rate be in many towns only a small fraction of its size. Although during the past year the Observatory was open only thirty-seven nights, yet the Committee report that its "utility is confirmed by experience."

A lioness's brain was recently dissected and studied by Herr Familiant at the Anatomical Institute of the Berne Veterinary School. Among other results he finds (*Mittheilungen* of Berne Naturalists' Society, 1885) that in form it is in many respects intermediate between the dog's and the cat's brain; from both it is distinguished by relatively small projection of the cerebellum and narrowness of the *lobus pyriformis*. Further, the chief fissures of the brain of carnivores are to be found in that of primates, the principal differences between homologous fissures being partly in imperfect formation or perhaps retrograde formation of certain parts, and partly in confluence of some sections of originally separate fissures. In some varieties of the fissuring of man's brain, the original relations of the carnivore's brain recur. The parieto-occipital fissure is a special formation not met with in the brain of carnivores. The secondary fissures, especially in the frontal lobes, are due to a special mode of fissuring that has appeared late, and is therefore subject to wide variations.

Archæologists are placed under fresh obligations to Dr. A. B. Meyer, the indefatigable curator of the Dresden Natural History Museum for his recent publications on the prehistoric settlements and graveyards of Gurina in Karinthia and of Hallstadt in Upper Austria. Since about the middle of the century, Gurina, which lies on the Upper Gail, an Alpine stream flowing to the Drave above Klagenfurth, had been vaguely spoken of in connection with a few stray antique objects from time to time falling into the hands of collectors. But the very locality of the place was scarcely known until, one of these objects coming in the way of the author, he was induced to visit the neighbourhood during the summer of 1884 on behalf of the Viennese Anthropological Society. Although able to do little more than "scratch the surface," he was soon convinced that Gurina must have been an important centre of European culture, either Etruscan or more probably Illyrian, some centuries before the new era, consequently that a systematic exploration of the locality is urgently demanded in the interest of archæological science. The results of his own preliminary investigations are embodied in an elaborate monograph, entitled "Gurina im Obergailthal" (Dresden, 1885), which also contains a full account of all the interesting finds hitherto made and here figured on fourteen admirably executed photographic plates. Although mostly picked up accidentally without any systematic research, these finds are of the most varied character, including Greek (Alexandrian), Roman (Imperial), Keltic (?), and other barbaric coins in silver, bronze, copper, and brass; bronze and iron fibulæ, iron chains, bronze chains and plaques, bronze and tin statuettes, iron swords and knives, glass ware, potsherds plain and ornamented, and other artistic remains, some apparently of local manufacture, some introduced from Greece, Italy, Gaul, and other countries during a period ranging from perhaps 200 or 300 years before to as many after the new era. Amongst the most interesting objects are the bronze plaques, pins or bodkins inscribed with Etruscan or Illyrian characters, a few words of which have been deciphered and referred by Paoli to the Illyrian branch of the Aryan linguistic family. The Illyrian (Thraco-Illyrian) peoples would seem to have reached their extreme western limits in this part of Noricum, where they came in contact with the Etruscans and Kelts, and were ultimately absorbed in the Roman Empire.

On his return from Gurina, Dr. Meyer made an excursus to the prehistoric necropolis of Hallstatt in Upper Austria, an account of the past and present state of which he communicates in a short memoir, "Das Gräberfeld von Hallstatt" (Dresden, 1885), illustrated with a photographic view of the place and photographic plates of two of the finest objects found there. Although Hallstatt has been "exploited" by treasure-seekers ever since 1835, during which nearly 2000 graves have been opened, Dr. Meyer's hasty survey satisfied him that the place is still far from exhausted. Most of the graves have been rifled; but the site occupied by the neighbouring prehistoric settlement appears to have been scarcely touched, and there remain several thousand square yards of ground still to explore. Until this is done it will be difficult to come to any definite conclusion as to the origin, period, and duration of the settlement. The fact that no Keltic coins have ever been discovered at Hallstatt seems to support Morlot's view that the foundation dates from about the fourth century before the new era. Basing his calculations on the number of graves in the place, Dr. Meyer thinks that it cannot have flourished for more than two hundred years, if so long. The two objects here figured and now preserved in the Museum of Linz, are a large fibula or brooch with twelve long chain pendants spreading out like a fan, and a knife with peculiar bronze handle and iron blade.

Some little time since an account was given in Nature (vol. xxx. p. 271) of the edible birds'-nest caves at Gomanton, in British North Borneo. A recent number of *Die Natur* contains a translation from the Danish *Geographical Journal* of an account of a visit to certain caves in islands off the coast of the Malay Peninsula, where these nests are also produced. The islands are very small, and almost inaccessible; they lie between 8° and 10° N. latitude, and lie between twenty and forty miles off the coast. They belong to the Siamese Government, and are farmed out to contractors, who collect the nests, and despatch them to China. The harvest is during the months of March and April. As soon as the nests are built, and before the swallows begin to lay their eggs, they are collected; the birds then build second nests, and these are likewise taken away; the third nests are left undisturbed for the birds to lay and hatch. The island visited by the Danish writer was about 500 feet high, and 3000 feet in diameter. The caves are only accessible by means of rattan ladders, and the nests are collected from the roofs by means of rattan galleries and stagings. To show the impossibility of ingress and egress without artificial assistance, it is stated that about forty years ago, before the collection and sale of the nests was made a Government monopoly, about fifty Malays arrived at the caves before the Siamese, and commenced taking the nests; while they were engaged in this the Siamese arrived, and in revenge ran away with the rattan ladders, leaving the whole of the Malays to die of hunger and thirst in the caves, from which their only means of escape had been taken. Their skeletons are still in the caves. These Siamese caves appear smaller, not so well ordered, and infinitely wilder and more dangerous than those at Gomanton, but otherwise there appears little difference in the nests themselves, or in the mode of collecting them.

THE latest numbers of the Ceylon *Orientalist* (Nos. 3 and 4, vol. ii.) are largely occupied with folk-lore. The editor writes on comparative folk-lore, showing how certain Singalese stories occur elsewhere in Sanskrit and Siamese collections. Mr. Lewis's "Notes on some Oriental Folk-lore Stories" is on much the same lines, the field examined being somewhat more extensive. Thus a story from a Singalese collection of stories, the "Jataka," is found in English in Chaucer's "Pardoner's Tale." There are two other papers of a like character. The Rev. H. Horsley writes on Tamil proverbs, while Mr. Lewis concludes some interesting papers on a subject which appears to have escaped investigation hitherto—viz. the terms of relationship in Singalese and Tamil.

PROF. LODGE wishes to state that in his letter under the heading of "Permanent Magnetic Polarity," in our last issue, in the last paragraph the word "*explained*" should be "*unexplained.*"

THE additions to the Zoological Society's Gardens during the past week include a Ring-tailed Lemur (*Lemur catta*) from Madagascar, presented by Mr. Alfred Best; a Bonnet Monkey (*Macacus sinicus*) from India, presented by Dr. E. Woakes; a Mountain Ka-Ka (*Nestor notabilis*) from New Zealand, presented by Mr. James Ellis; four Leopard Tortoises (*Testudo pardalis*), eleven Angulated Tortoises (*Chersina angulata*), an Areolated Tortoise (*Homopus areolata*), three Geometric Tortoises (*Testudo geometrica*), a Robben Island Snake (*Coronella phocarum*), two Infernal Snakes (*Boodon infernalis*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; two Common Boas (*Boa constrictor*) from South America, a West African Python (*Python sebæ*) from West Africa, presented by Mr. Daniel Nicols; two Golden Plovers (*Charadrius pluvialis*), European, a Sharp-nosed Crocodile (*Crocodilus acutus*) from Central America, deposited; three Wheatears (*Saxicola œnanthe*), British, purchased; a White-fronted Lemur (*Lemur albifrons*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE BINARY STAR β DELPHINI.—In 1873 Burnham discovered that the primary star of the well-known wide double-star β Delphini was itself a very close double, and a few years' observations sufficed to show that it was a binary star in rapid motion. As the companion star has now described over 180° of its apparent path, a fairly accurate approximation to the elements of its orbit is possible. An attempt has accordingly been made, first by Dubiago and more recently by Gore, to determine the orbit, with tolerably accordant results. The former makes the period to be 26·07 years, with perihelion passage at 1882·19 and semi-axis major 0″·55. Gore finds the period to be 30·91 years, and fixes the periastron passage at 1882·25, with semi-axis major = 0″·517. The observations are fairly well represented by these elements, considering what a close and difficult object the star is to measure. According to Gore's elements the components were at their minimum distance, 0″·192, at the epoch 1879·91; and during 1879 Burnham failed to elongate the star with the 18½-inch Dearborn refractor. We hope that those double-star observers who possess sufficiently powerful telescopes will not lose sight of this interesting object.

THE VELOCITY OF LIGHT AND THE SOLAR PARALLAX.—From two determinations of the velocity of light made by Prof. Michelson (in 1879 and in 1882), and from one made by himself in 1882, Prof. Newcomb concludes that the most probable value of this physical constant, expressed in kilometres per second, is 299860 ± 30. Adopting Nyrén's value of the constant of aberration from Pulkowa observations, viz. 20″·492, the corresponding value of the solar parallax is 8″·794, taking the earth's equatorial radius to be 6378·2 kilometres, as determined by Clark. We may also draw attention to the circumstance that Prof. Newcomb considers that his observations negative the hypothesis put forward by Messrs. Forbes and Young as to the existence of a difference between the velocities of rays of different colours. Had there been such a difference to anything like the extent asserted by these physicists, it would have shown a well-marked effect in Prof. Newcomb's apparatus. No trace, however, of any such effect could be seen. Prof. Michelson has arrived at similar conclusions as to the erroneous nature of the views expressed by the Scotch experimenters.

FABRY'S COMET.—The following ephemeris by Dr. H. Oppenheim (*Astr. Nach.* No. 2712) is in continuation of that given in NATURE for 1886 March 18:—

For Berlin Midnight

1886	R.A.			Decl.		Log *r*	Log Δ	Brightness
	h.	m.	s.	°	′			
April 16	23	58	48	38	46·9 N.	9·8317	9·6825	118
18	0	13	47	37	53·4	9·8417	9·6282	145
20	0	33	27	36	24·0	9·8527	9·5686	181
22	0	58	58	33	58·3	9·8645	9·5043	230
24	1	31	39	30	2·6	9·8770	9·4370	297
26	2	12	8	23	52·1	9·8899	9·3726	376
28	2	59	25	14	52·2	9·9031	9·3229	445
30	3	50	0	3	37·0 N.	9·9165	9·3042	456

The brightness on December 2 is taken as unity.

BARNARD'S COMET.—The following ephemeris by Dr. H. Oppenheim (*Astr. Nach.* No. 2714) is from elements by Dr. A. Krueger:—

For Berlin Midnight

1886	R.A.			Decl.		Log *r*	Log Δ	Brightness
	h	m.	s.	°	′			
March 31	1	50	22	30	45·4 N.	9·9509	0·2006	11
April 4	1	49	33	32	15·9		0·1868	
8	1	48	25	33	49·1	9·8776	0·1699	18
12	1	46	58	35	23·8		0·1494	
16	1	45	6	36	57·3	9·7962	0·1245	32
20	1	42	50	38	25·0		0·0941	
24	1	40	23	39	38·9	9·7188	0·0568	62
28	1	38	22	40	26·0		0·0111	
May 2	1	38	8	40	28·4 N.	9·6796	9·9556	118

The brightness on December 5 is taken as unity.

THE NEBULA ROUND MAIA.—MM. Perrotin and Thollon (*Comptes rendus*, cii., No. 10) have succeeded in seeing the Maia nebula "without too much difficulty"; but M. Perrotin adds, "We have seen the nebula because we knew it existed. We should certainly not have observed it else." The nebula seemed comprised in an angle of about 120°, with the opening turned towards the north-west, and the summit to Maia; one of the sides lies along the line joining Maia to Bessel's star An. 4. The general appearance is that of a faintly luminous cloud, of which the different parts are very unequally bright. A nebulous filament stretching from Maia nearly to the little star just named, and a region towards the north-east and nearly 2′ from Maia, are the brightest parts of the nebula. On one occasion exceedingly faint luminous points were suspected in the centre of this latter district.